



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,359	01/17/2002	Paul Chen	263/072	5790
25700	7590	10/07/2005		
FARJAMI & FARJAMI LLP 26522 LA ALAMEDA AVENUE, SUITE 360 MISSION VIEJO, CA 92691			EXAMINER GRIER, LAURA A	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,359

Applicant(s)

CHEN ET AL.

Examiner

Laura A. Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-34 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 3,6,7 and 11-13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lambrecht, U. S. Patent No. 6181800.

Regarding **claim 1**, Lambrecht discloses processing and testing head related transfer functions (HRTFs). Lambrecht's disclosure inherently discloses measuring a plurality of impulse response for each individual of a sample group, and converting each measured impulse responses to a set of head related transfer functions as evident by the disclosure of how the measurements are taken of a person's hearing frequency response (col. 1, lines 17-20, and lines 32-35) and how a generalized HRTF is the results of average HRTF of a subset of a general population (col. 1, lines 52-54, 66 - col. 2, line 1); Lambrecht further discloses taking one or more generalized HRTFs from a set of generalized (averaged) HRTFs and testing the selected one or more generalized HRTFs at one or more locations for determining the most adequate HRTF for individuals (col. 2, lines 24-38, col. 3, lines 49-65, and col. 6, lines 52-67 and col. 7,

Art Unit: 2644

lines 32-35), which read on averaging the sets of HRTFs, and testing the average set of HRTFs.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 5 and 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambrecht in view of Tucker et al., U. S. Patent No. 5742689.

Regarding **claim 5**, Lambrecht discloses everything claimed as applied above (see claim 1). However, Lambrecht fails to disclose the measured response corresponding to a grid point in a coordinate system.

Regarding the impulse response corresponding to a grid point on a coordinate system, in a similar field of endeavor, Tucker et al. (herein, Tucker) discloses processing HRTFs, wherein, HRTFs are obvious results of impulse response of one measured hearing response of multi-dimensional sound. Tucker's disclosure includes corresponding HRTF to a pair of elevation and azimuth coordinates (figure 3 and col. 4, lines 14-32, and col. 7, lines 18-30), which indicates the impulse response corresponding to a grid point on a coordinate system.

Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by enabling the HRTF to

correspond to a grid point in a coordinate system for the purpose of providing a better perception or an exact point of where an individual listener hears a sound.

Regarding **claim 8**, Lambrecht discloses everything claimed as applied above (see claim 1).). However, Lambrecht fails to disclose dividing the set of HRTFs into demographically defined groups.

Regarding the HRTFs being divided into demographically defined groups, in a similar field of endeavor, Tucker disclose sets of HRTFs based upon different heights, sexes (col. 4, lines 33-44, and col. 8, lines 38-col. 9, lines 1-29) and/or ordered criteria.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by incorporating various sampling sets of HRTFs.

Regarding **claim 9**, Lambrecht and Tucker disclose everything claimed as applied above (see claim 8). Lambrecht and Tucker (Tucker) discloses sets of HRTFs based upon different heights, sexes (col. 4, lines 33-44, and col. 8, lines 38-col. 9, lines 1-29) and/or ordered criteria, wherein individual are tested in respect to such HRTF that best matches a particular individual.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by incorporating various sampling sets of HRTFs to implement unbiased HRTF matching of an individual.

5. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambrecht in view of Orduna-Bustamante et al., U. S. Patent No. 5862227.

Regarding **claim 2**, Lambrecht discloses everything claimed as applied above (see claim 5). However, Lambrecht fails to disclose the impulse responses having samples of a certain length using a certain sampling rate.

Regarding the sampling rate, in a similar field of endeavor, Orduna-Bustamante discloses a processing HRTF (impulse responses), where the signal applied for HRTF processing has a sampling rate of 72 kHz (col. 15, lines 12-18), wherein a sample comprises a certain length.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by providing signal of a particular sampling rate for the purpose of providing an adequate testing criteria to acquire efficient HRTF results.

Regarding **claim 4**, Lambrecht and Orduna-Bustamante disclosed everything claimed as applied above (see claim 2). Lambrecht and Orduna-Bustamante (Orduna-Bustamante) further discloses the impulse response being downsampled to 48 kHz (col. 15, lines 12-18), wherein the reduction of the number of the samples is obvious.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by providing signal of a reduced sampling rate for the purpose of providing an optimal sampling rate to acquire efficient HRTF results.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambrecht .

Regarding **claim 10**, Lambrecht discloses everything claimed as applied above (see claim 1). However, Lambrecht fails to disclose decimating the HRTFs. The reducing HRTFs was well known in the art. Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Lambrecht by decimating a set of HRTFs of a filter which uses or supplies the HRTFs parameters for a 3D sound device for purpose of reducing the complexity of the filter.

Allowable Subject Matter

7. **Claims 14-34** are allowed.
8. **Claims 3, 6-7, 11-13** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A. Grier whose telephone number is (571) 272-7518. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura A. Grier
Primary Examiner
Art Unit 2644
October 3, 2005